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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,885	05/22/2001	Eric Hauptfear	MTC 6721.1; 39-21(51835)	9345
321	7590	02/26/2004	EXAMINER	
SENNIGER POWERS LEAVITT AND ROEDEL ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			ZUCKER, PAUL A	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,885

Applicant(s)

HAUPFEAR ET AL.

Examiner

Paul A. Zucker

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-64,96-100,218-233,235-325 and 327-399 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,5-43,47-64,96-100,218-230,235-325 and 327-399 is/are allowed.
- 6) ☒ Claim(s) 44-46 and 231-233 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>20040219</u> |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 19 November 2003.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Applicant's cancellation of claim 234 is acknowledged.
4. Claims 1, 2, 5-64, 96-100, 218-233, 235-325, and 327-399 are pending.
5. The objection to the claims set forth in paragraph 14 of the previous Office Action mailed 19 May 2003 is withdrawn in response to Applicant's amendment.
6. The rejection under 35 USC § 112, second paragraph, set forth in paragraph 11 of the previous Office Action mailed 19 May 2003 is withdrawn in response to Applicant's remarks.
7. The rejection under 35 USC § 102 (b) set forth in paragraph 12 of the previous Office Action mailed 19 May 2003 is withdrawn in response to Applicant's amendment.

New Rejections

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1621

8. Claims 44-46 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Franz (US 3,950,402 04-1976).

Instantly claimed is a process for making an N-(phosphonomethyl)glycine product which comprises:

- a. Oxidizing N-(phosphonomethyl) iminodiacetic acid in the presence of a catalyst;
- b. Precipitating the N-(phosphonomethyl)glycine product to produce N-(phosphonomethyl)glycine crystals;
- c. Separating the mother liquor; and
- d. Evaporating the mother liquor to produce N-(phosphonomethyl)glycine crystals and a second mother liquor.

Franz teaches (Column 5, lines 32-58) a process for the oxidation of N-(phosphonomethyl) iminodiacetic acid to produce N-(phosphonomethyl)glycine with hydrogen peroxide in the presence of sulfuric acid as catalyst. Franz also teaches (Column 4, line 58- column 6, line 40) the use of platinum, palladium and rhodium catalysts for the oxidation reaction in the presence of oxygen gas. Franz teaches (Column 3, lines 47-53) the precipitation by cooling and recovery by filtration of N-(phosphonomethyl)glycine crystals to produce a primary mother liquor. Franz further teaches (Column 3, lines 55-55) the production of additional crystals from the mother liquor upon continued cooling to produce a secondary mother liquor.

Art Unit: 1621

The difference between the process taught by Franz and that instantly claimed is that the secondary mother liquor is produced in the process of Franz by continued cooling. In the instant case, however, the secondary mother liquor is produced by evaporation of the primary mother liquor.

Franz, however, further teaches (Column 6, lines 57-61 and column 5, lines 59-61) reduction of the volume of the reaction product mixture by evaporation under reduced pressure and crystallization to produce N-(phosphonomethyl)glycine crystals. Franz teaches that temperatures of 78°C-17.5°C are obtained which overlaps with the instantly claimed range.

One of ordinary skill in the art would have been motivated to replace the second cooling step with the evaporation of solvent as taught by Franz since the evaporative process would allow more complete recovery of the N-(phosphonomethyl)glycine crystals and would have been less expensive (in terms of time and electricity) than continued cooling of the primary mother liquor.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art. There would have been a reasonable expectation of success since Franz teaches the suitability of the evaporative process for the production of N-(phosphonomethyl)glycine crystals.

Examiner's Response to Applicants Arguments with Regard to This Rejection

9. Applicants have presented several arguments with regard to this rejection. The Examiner responds to these below:

Art Unit: 1621

- a. Applicants argue that the amended claim 44 in which the evaporation of the primary mother liquor is "heat-driven" is distinguished from the process taught by Franz. The Examiner disagrees in as much as all evaporative processes, including that taught by Franz, are necessarily heat-driven since in the absence of heat no evaporation occurs.
- b. Applicants further argue that Franz ascribes no significance to the possibility of recovering product by two sequential crystallizations. The Examiner disagrees since Franz exemplifies two sequential crystallizations.
- c. Applicants further argue that one of ordinary skill in the art would use a single crystallization step. The Examiner disagrees since Franz teaches a sequential pair of crystallizations.

Applicant's arguments filed 19 November 2003 have been fully considered but they are not persuasive for the reasons indicated above.

10. Claims 231-233 are rejected under 35 U.S.C. 103(a) as being unpatentable Pelyva et al (UK 2,224,505 A 05-1990).

Instantly claimed is a process for making an N-(phosphonomethyl)glycine product which comprises:

- a. Oxidizing N-(phosphonomethyl) iminodiacetic acid in the presence of a catalyst;
- b. Dividing the product mixture into a primary fraction and a secondary fraction;

Art Unit: 1621

- c. Precipitating the N-(phosphonomethyl)glycine product to produce N-(phosphonomethyl)glycine crystals from the primary fraction;
- d. Separating the mother liquor; and
- e. Recycling the mother liquor to the oxidation reaction.
- f. Crystallizing the secondary fraction

Pelyva teaches (Page 8, line 25 – page 58, page 10, line 11) a process for the oxidation of N-(phosphonomethyl) iminodiacetic acid to produce N-(phosphonomethyl) glycine with hydrogen peroxide in the presence of sulfuric acid as catalyst. Pelyva further teaches (Page 9, lines 3-23) distilling a portion of the reaction mixture, crystallization of N-(phosphonomethyl)glycine from the reaction mixture by cooling, washing the crystals with water, making up the volume of the distillate with the wash water and returning the waste solution to the reaction mixture. The evaporative removal of reaction solvent in an oxidation reaction using recycled reaction waste is considered to meet the limitations of instant claim 233.

The difference between the process taught by Pelyva and that instantly claimed is that Pelyva does not suggest dividing the reaction product into a primary fraction and a secondary fraction, each of which is treated as Pelyva teaches.

One of ordinary skill in the art, however, would be motivated to divide the reaction product into plural fractions comprising at least a primary fraction and a secondary fraction by several considerations:

Art Unit: 1621

- a. Doing the crystallizations on smaller scale would allow better control of reaction conditions and, therefore, product purity;
- b. Doing the crystallizations on smaller scale would allow the use of smaller, less expensive, crystallization apparatus;
- c. Doing the crystallizations on smaller scale would allow both reaction product production and crystallization to proceed at their individual optimum rates.

Because such practice is routine, there would have been a reasonable expectation for success.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Conclusion

11. Claims 1, 2, 5-64, 96-100, 218-233, 235-325, and 327-399 are pending. Claims 44-46 and 231-233 are finally rejected. Claims 1, 2, 5-43, 47-64, 96-100, 218-230, 235-325, and 327-399 are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1621

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

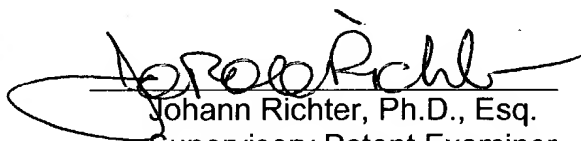
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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